

**Pathogens and symbionts associated with *Dermanyssus gallinae*: risks and potential control methods for the poultry industry.****C.V. MORO<sup>1</sup>, C.J. DE LUNA<sup>2</sup>, A. TOD<sup>2</sup>, J.H. GUY<sup>2</sup>, L. ZENNER<sup>3</sup> and O.A.E. SPARAGANO<sup>2</sup>**<sup>1</sup>Laboratoire « Microorganismes: Génome et Environnement », CNRS UMR 6023, Aubière, France;<sup>2</sup>School of Agriculture, Food and Rural Development, Newcastle University, Newcastle upon Tyne, NE1 7RU, UK.;<sup>3</sup>Ecole Nationale Vétérinaire de Lyon & Université de Lyon - CNRS UMR 5558, Laboratoire de Biométrie et Biologie Evolutive, Marcy L'Etoile, France.**E-mail: [Olivier.sparagano@ncl.ac.uk](mailto:Olivier.sparagano@ncl.ac.uk)**

This paper reviews the different pathogens and symbionts identified recently in the poultry red mite, *Dermanyssus gallinae*. This ectoparasite has been associated, at different levels, with the transmission of several pathogens and its vectorial capacity was recently confirmed for salmonellosis. Results show that *D. gallinae* could act as a biological vector for *S. Enteritidis*. We also detected *Escherichia coli*, *Shigella* spp. *Staphylococcus* spp. and *Stenotrophomonas matophilia* (“Steno”) alive on or inside this poultry pest. For the symbionts, bacteria of the genera *Cardinium*, *Spiroplasma*, *Rickettsiella* and *Schineria* were identified living inside the poultry red mite by PCR, PCR-TTGE and DNA sequencing. However, at present time, it was not possible to confirm the presence of the genus *Wolbachia*, which has already been observed in other ectoparasites. The presence of specific bacteria in *D. gallinae* could therefore be considered as a way to knock down mite. This paper discusses the opportunities for the poultry industry to control this endemic and costly pest.

**Keywords:** *Dermanyssus gallinae*, vectorial role, symbionts, pathogens